

AMENDMENT

IN THE SPECIFICATION:

Please amend paragraph 29 as follows:

A fan 34 draws air into the air purification system 20 through an inlet 22. The air flows through a particle filter 24 that filters out dust or any other large particles by blocking the flow of these particles. The air then flows through a substrate~~28~~, such as a honeycomb 28. In one example, the honeycomb 28 is made of aluminum or an aluminum alloy. Figure 3 schematically illustrates a front view of the honeycomb 28 having a plurality of hexagonal open passages or channels 30. The surfaces of the plurality of open passages 30 are coated with a photocatalytic/thermocatalytic coating 40. When activated by ultraviolet light, the coating 40 oxidizes volatile organic compounds that adsorb onto the coating 40. As explained below, as air flows through the open passages 30 of the honeycomb 28, contaminants that are adsorbed on the surface of the coating 40 are oxidized into carbon dioxide, water and other substances.

Please amend paragraph 34 as follows:

The outer layer 46 of titanium dioxide~~46~~ or metal oxide/titanium dioxide is effective in oxidizing volatile organic compounds and semi-volatile organic compounds to carbon dioxide, water and other substances. The outer layer 46 has an effective thickness and porosity. That is, the outer layer 46 is able to allow other contaminants that are not oxidized by the outer layer 46, such as carbon monoxide, to pass through the outer layer 46 and adsorb on the inner layer 44. In one example, the outer layer 46 is visibly white and not opaque to ultraviolet light.

Please amend paragraph 63 as follows:

Figure 5 illustrates an alternate embodiment of the bifunctional coating 40 of the present invention. The coating 40 includes a layer 44 of a metal/titanium dioxide or metal compound/titanium dioxide thermocatalyst/photocatalyst applied on a portion of the surface 54 of the honeycomb 28 and ~~aan~~ outer layer 46 of a titanium dioxide or metal compound/titanium dioxide photocatalyst applied on another portion of the surface 54 of the honeycomb 28.

Please amend paragraph 64 as follows:

In another embodiment, different coating formulations are placed on different substrates to increase the design flexibility of the air purification system 20 and to change the overall effectiveness of the air purification system 20.